

REMARKS

Entry of the present amendment and favorable reconsideration and allowance of this application are requested.

**1. Discussion of Amendments**

By way of the amendment instructions above, the subject matter of claim 5 has been incorporated into each of the pending independent claims 1 and 6. Claim 5 has therefore been canceled as redundant.

Therefore, following entry of this amendment, claims 1-4, 6-14 and 16-20 will remain pending herein for which favorable reconsideration is requested.

**2. Response to Examiner's Allegation of Untruthfulness**

The Examiner has asserted that certain statements in the applicants' prior amendment were untruthful (see the paragraph 16 on page 8 of the December 23, 2008 Official Action entitled "Response to Arguments".) Applicants respectfully disagree with the Examiner on this point.

Specifically, at column 1, lines 24-39, of Ohkawa et al (USP 4,891,399) describe prior art attempts to incorporate metal powders of zinc, copper, iron and the like into thermoplastic resins in order to improve a variety of properties in comparison to metal, such as tensile strength, impact strength, hardness, heat resistance and dimensional stability. While Ohkawa et al does wish to provide a "...novel thermoplastic resin-based molding composition loaded with a metallic filler free from the above described problems and disadvantages in the conventional metallic filler-loaded molding compounds" (column 2, lines 38-43), Ohkawa et al nonetheless does not *explicitly* disclose which of the several "problems" their compositions solve.

Thus, it was entirely truthful for the applicants to state that “[n]othing is said [in Ohkawa et al] about the influence of the metallic filler on *thermal stability* of the polymer” or that “Cu and Fe are not mentioned [in Ohkawa et al] as alternatives in view of *thermal stabilization*.” (Amendment dated November 21, 2008 at page 7, lines 14-15 and page 8, lines 6-7, respectively, emphasis added.) That the Examiner may have a different interpretation of the Ohkawa et al reference as compared to the applicants does not make such statements “untruthful.” Thus, while the Examiner may reasonably contend that the applicants’ statements are in error due to his interpretation of the Ohkawa et al reference, it is manifestly unreasonable to assert that the applicants have made untruthful statements based simply on their interpretation of the same reference.

### **3. Response to Substantive Rejections**

Claims 1-6 attracted a rejection under 35 USC §103(a) as allegedly “obvious” from Tung et al (US 2003/0027912) in view of Presenz et al (US 2003/0091823) with evidential support from Tomihashi et al (WO 00/58414, with USP 6,734,236 cited as an equivalent). Claims 1-2, 5-14 and 16-20 also attracted a rejection under 35 USC §103(a) as allegedly “obvious” from Ohkawa et al (USP 4,891,399) in view of Marten et al (USP 6,350,802). Applicants respectfully disagree.

#### **A. Tung et al in view of Presenz et al and Tomihashi et al**

At the outset, applicants wish to emphasize that the presence of *fibrous* reinforcing agent is not a minor difference, but instead is essential for molded parts for electrical and electronic (E&E) applications as well as automotive applications, where heat ageing is important.

Tung et al is related to bottles, wherein fibers are not used. Moreover, oxygen scavenging is important to the resin compositions of Tung et al -- not heat ageing.

Presenz et al is also related to bottles and uses metal salts as acid scavenger. Presenz et al indicates that the same composition might be used for other applications,

and for such purpose can be reinforced with glass fibers. Such a naked statement however, is no reason for an ordinarily skilled person to use metal powder as a heat stabilizer in fiber reinforced compositions. Moreover, one would certainly not have the expectations that the heat ageing of the compositions would improve as according to the applicants' claimed invention, which shows extremely good results. In this respect it is noted that CuI/KI combinations have been used in the art for a long time, and that much better results are obtained now with the applicants' present invention.

The Examiner also comments that iron particles inherently also function as a heat stabilizer since such function is well known. Such a statement is however incorrect. In this regard, a function is not inherent in one composition by the fact that the same function is known in another composition. Furthermore, as will be discussed in greater detail below, the applied Ohkawa et al patent indicates that polymers can in fact degrade due to the influence of the metal particles.

Another important aspect is that iron powder acts as a heat stabilizer *only* at sufficiently high temperatures, typically above 180°C. In contrast to CuI/KI system, there is thus little if any effect seen below such a high temperature. This may explain technically why CuI/KI has always been used, and iron was not used. It also shows that the function of iron powder as a heat stabilizer is not "inherent" as suggested by the Examiner.

Therefore, withdrawal of the rejection advanced against claims 1-6 under 35 USC §103(a) based on the combination of Tung et al with Presenz et al and Tomihashi et al.

#### B. Ohkawa et al in view of Marten et al

Applicants respectfully suggest that the Examiner's interpretation of Ohkawa et al is incorrect. Specifically, Ohkawa et al is not concerned with heat ageing as is the case with the presently claimed invention.

In this regard, Ohkawa et al list a number of positive properties of thermoplastic resins in comparison to metals (column 1, lines 15-23) and some negative ones (column 1, lines 24-31). Thermoplastic resins have inferior mechanical properties, heat resistance and dimensional stability.

To overcome these problems, Ohkawa et al uses a blend of thermoplastic polymers and large amounts of metal to counterbalance for the negative properties of polymers, wherein the metal particles are used as fillers. The function of the filler, to increase mechanical properties and dimensional stability (column 2, lines 44-50), is emphasized throughout Ohkawa et al. Moreover Ohkawa et al has to compensate for the negative effects that the metals have on the polymers.

Dimensional stability is described in column 2, lines 20-26 and linked to mold shrinkage and warping distortion. Heat resistance is not further described per se, but likewise this has to do with the melting and softening of thermoplastic resins. This also seems to be the interpretation of the Examiner, since he states that:

"The prior art is silent as to an HDT value .... Even though the prior art is silent on the recited properties, the disclosed invention is directed to thermoplastic composition having improved heat resistance and dimensional stability".

The presently claimed invention is not focused on improving thermal properties such as the HDT or the dimensional stability as in low warping. Instead, the aim of the present invention is to provide compositions with improved heat ageing properties, and a process for making the same (page 2, lines 29-33), i.e., retention of properties over time when exposed for a longer time to elevated temperatures.

Ohkawa et al really has nothing to do with these aspects. Moreover, Ohkawa et al clearly indicate that due to the influence of the metal particles in the metallic filler loaded compositions, degradation of the matrix resin may sometimes take place (see,

column 2, lines 27-31, “[D]egradation of the matrix resin may sometimes take place in such a metallic filler-loaded composite molding compound due to the influence of the metal particles.”). To compensate for the negative effects of the metals on the polymer, Ohkawa et al finds it necessary to coat the metal fillers with hydrophobic layer (claim 1). In contrast, according to the presently claimed invention, inorganic salts and acidifying components are added to further promote the heat ageing properties. These components are generally highly hydrophilic.

Thus Ohkawa et al is not only related to different materials, i.e. highly filled polymer compositions to increase the mechanical properties and dimensional stability, but is also directing an ordinarily skilled person away from the present invention.

In addition to the distinctions noted above, the amounts differ significantly. In this regard, Ohkawa et al uses 30-98 pbw of metal filler relative to 2-70 pbw of polymer, corresponding with at least 43 pbw per 100 pbw polymer. In fact, most of the examples in Ohkawa et al are around 90 pbw of metal filler and 10 pbw of polymer.

According to the presently claimed present invention, however, 0.01-20 pbw of metal particles per 100 pbw polymer is used which is substantially lower than that of Ohkawa et al. (See pending claim 7.) The examples of the originally filed specification also illustrate that with around 1wt.% of metal significant improvements in the heat ageing are obtained.

The results obtained by the present invention are unforeseeable from Ohkawa et al either alone or in combination with Martens. In this regard, Martens deals with flame retardant polyamides comprising a halogen containing flame retardant, an antimony synergist, inorganic components and 0-2 wt.% heat stabilizers. The latter can be a variety of organic and inorganic common heat stabilizers.

Martens deals with the problem of thermal instability of the polymer in molding conditions. Combination of Martens with Ohkawa et al to solve the thermal instability by

**GIJSMAN et al**  
**Serial No. 10/563,378**  
March 17, 2009

using metals would be directly against the teaching of Ohkawa et al as the latter teaches that the metals would cause degradation of the polymer.

Thus, the combination of Ohkawa et al with Martens does not render obvious the presently claimed invention. Withdrawal of the rejection advanced under 35 USC §103(a) is therefore in order.

#### **4. Fee Authorization**

The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Account No. 14-1140.

Respectfully submitted,

**NIXON & VANDERHYE P.C.**

By: \_\_\_\_\_ /Bryan H. Davidson/  
Bryan H. Davidson  
Reg. No. 30,251

BHD:dlb  
901 North Glebe Road, 11<sup>th</sup> Floor  
Arlington, VA 22203-1808  
Telephone: (703) 816-4000  
Facsimile: (703) 816-4100